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09/992,823	11/14/2001	Daniel W. Wong	ATI.0100520	5879
34456	7590	02/10/2005	EXAMINER	
TOLER & LARSON & ABEL L.L.P.			CHAI, LONGBIT	
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AUSTIN, TX 78746			ART UNIT	PAPER NUMBER
			2131	

DATE MAILED: 02/10/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

**Application No.**

09/992,823

**Applicant(s)**

WONG ET AL.

**Examiner**

Longbit Chai

**Art Unit**

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 14 November 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☐ Claim(s) \_\_\_\_\_ is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-62 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 14 November 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

## DETAILED ACTION

### *Priority*

1. No claim for priority has been made in this application.

The effective filing date for the subject matter defined in the pending claims in this application is 11/14/2001.

### *Claim Rejections - 35 USC § 112*

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claim 48 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 48 is indefinite because "a lower level of protection from unauthorized access than the first software driver" is unclear and there is no description set forth to address the specific lower level of protection in the specification.

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraph of 35 U.S.C. 102 that forms the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 1 – 3, 8, 9 – 13, 16, 18, 24 – 26, 31 – 33, 38, 39, 47 – 51 and 54 are rejected under 35 U.S.C. 102(e) as being anticipated by Ciacelli (Patent Number: 6236727), hereinafter referred to as Ciacelli.

As per claim 1, 31 and 49, Ciacelli teaches a method comprising the steps of:  
sending a first encrypted routine of a software driver to a peripheral device,  
wherein the software driver is to interface with the peripheral device (Ciacelli: see for example: Column 5 Line 43 – 45);

decrypting, at the peripheral device, the first encrypted routine to generate a plaintext routine (Ciacelli: see for example: Column 5 Line 46 – 48); and

providing the plaintext routine to the software driver (Ciacelli: see for example: Column 5 Line 54 – 55: the decrypted “decryption routine” must be presented to the software driver so that the decryption function can be performed and executed accordingly to decrypt the data).

As per claim 47, Ciacelli teaches a method comprising the steps of:

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sending a first encrypted routine of a first software driver to a peripheral device, wherein the software driver is to interface with the peripheral device (Ciacelli: see for example: Column 5 Line 43 – 45);

decrypting, at the peripheral device, the first encrypted routine to generate a plaintext routine (Ciacelli: see for example: Column 5 Line 46 – 48); and

providing the plaintext routine to a second software driver (Ciacelli: see for example: Column 6 Line 54 – 60).

As per claim 3, Ciacelli teaches the claimed invention as described above (see claim 1). Ciacelli further teaches the first encrypted routine is an encrypted version of a decryption routine (Ciacelli: see for example: Column 5 Line 43 – 45).

As per claim 2 and 50, Ciacelli teaches the claimed invention as described above (see claim 1 and 49 respectively). Ciacelli further teaches the first encrypted routine is an encrypted version of an encryption routine (Ciacelli: see for example: Column 5 Line 43 – 50, Column 6 Line 54 – 60, and Column 9 Line 6 – 14: re-encryption is employed after CSS decryption and thereby not only the decryption algorithm but also the encryption algorithm are needed with the encrypted version (Ciacelli: see for example: Column 9 Line 6 – 14)).

As per claim 8, 18, 33 and 38, Ciacelli teaches the claimed invention as described above (see claim 1). Ciacelli further teaches sending a decryption code to

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the peripheral device, where the decryption code is to be used by the peripheral device to decrypt the first encrypted routine (Ciacelli: see for example: Column 5 Line 45 – 60).

As per claim 48, Ciacelli teaches the claimed invention as described above (see claim 47). Ciacelli further teaches the second software driver includes a lower level of protection from unauthorized access than the first software driver (Ciacelli: see for example: Column 5 Line 43 – 45 and Column 6 Line 54 – 60).

As per claim 9, Ciacelli teaches the claimed invention as described above (see claim 1). Ciacelli further teaches removing the plaintext routine (Ciacelli: see for example: Column 7 Line 16 – 21).

As per claim 10, 24, 32 and 54, Ciacelli teaches the claimed invention as described above (see claim 1, 17, 31 and 49 respectively). Ciacelli further teaches encrypting, at the peripheral device, the plaintext routine to generate a second encrypted routine, where the second encrypted routine is a version of the first encrypted routine (Ciacelli: see for example, Column 7 Line 16 – 22, Column 7 Line 58 – 65 and Column 9 Line 6 – 14: Ciacelli teaches (a) clear data is “never” resident in an accessible computer system structure such as memory buffer to inhibit theft (Ciacelli: see for example, Column 7 Line 16 – 22) and thereby the plaintext routine must be resident in the encrypted form, (b) re-encryption mechanisms through multiple “devices” (Ciacelli: see for example, Column 7 Line 58 – 65 and Column 9 Line 6 – 14)).

providing the second encrypted routine to the software driver (Ciacelli: see for example: Column 5 Line 43 – 50 and Column 6 Line 54 – 60: so that the re-encryption / decryption function can be performed and executed accordingly to re-encrypt / decrypt the data by the software driver).

As per claim 11, 25 and 39, Ciacelli teaches the claimed invention as described above (see claim 10, 24 and 31 respectively). Ciacelli further teaches sending a encryption code to the peripheral device, where the encryption code is to be used by the peripheral device to encrypt the plaintext routine (Ciacelli: see for example: Column 6 Line 42 – 45: an encryption key is qualified as an encryption code – i.e. key code. Regarding encrypting the plaintext routine, see the same rationale addressed above in claim 10).

As per claim 12 and 26, Ciacelli teaches the claimed invention as described above (see claim 10 and 24 respectively). Ciacelli further teaches the second encrypted routine is a modified version of the first encrypted routine (Ciacelli: see for example: Column 7 Line 58 – 65 and Column 9 Line 6 – 14: the modified version is considered as re-encryption as taught by Ciacelli – see the same rationale addressed above in claim 10).

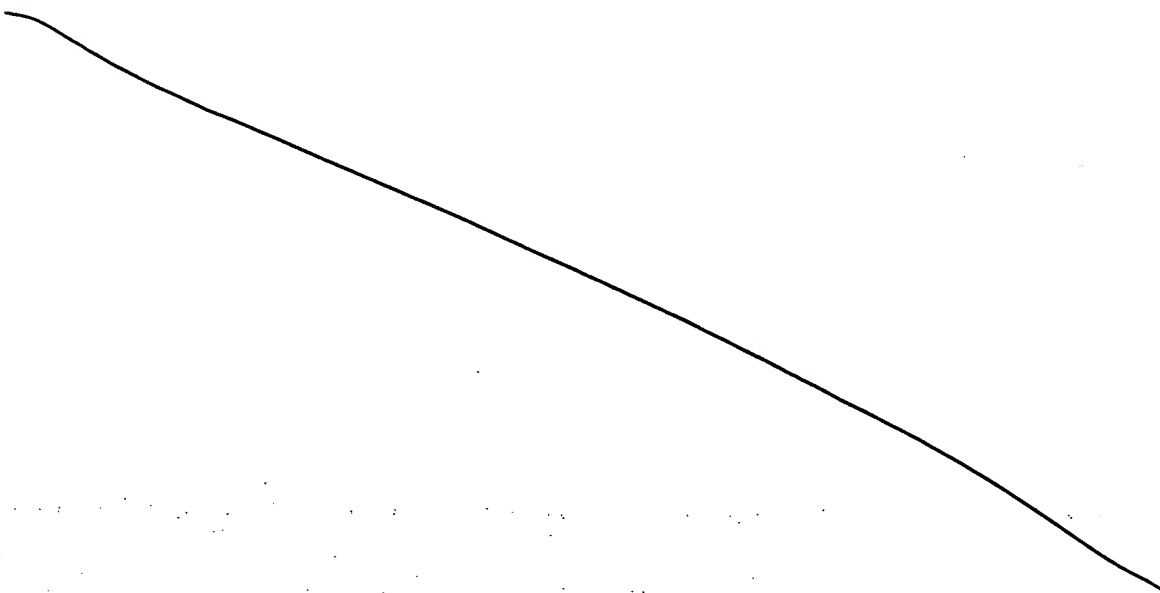
As per claim 13, Ciacelli teaches the claimed invention as described above (see claim 1). Ciacelli further teaches selecting the first encrypted routine from a plurality of

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different encrypted routines, wherein the plurality of different encrypted routines are functionally equivalent (Ciacelli: see for example: Column 14 Line 10 – 15).

As per claim 16, Ciacelli teaches the claimed invention as described above (see claim 1). Ciacelli further teaches providing includes storing the plaintext routine in a location in memory accessible by the software driver, and where the location in memory is known to the software driver (Ciacelli: see for example: Column 5 Line 45 – 55 and Column 6 Line 54 – 60: the memory location storing the decrypted “encryption / decryption routine” must be known to the software driver so that the re-encryption / decryption function can be performed and executed accordingly to re-encrypt / decrypt the data).

As per claim 51, Ciacelli teaches the claimed invention as described above (see claim 49). Ciacelli further teaches the first encrypted data includes an encrypted version of one of: a private encryption key, a private decryption key, a chip ID, and a device ID (Ciacelli: see for example: Column 6 Line 42 – 45).





***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

A person shall be entitled to a patent unless –

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 4 – 7, 17, 19 – 23, 30, 34 – 37, 38, 40 – 46 and 52 – 53, 55 – 62 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ciacelli (Patent Number: 6236727), hereinafter referred to as Ciacelli, in view of Freeman (Patent Number: 2002/0129374), hereinafter referred to as Freeman.

As per claim 17, 40 and 55, Ciacelli teaches a method comprising:

sending a first encrypted routine of a software driver to a graphics chip, wherein the software driver is to interface with the graphics chip, and where the first encrypted routine is an encrypted version of an encryption routine (Ciacelli: see for example: Column 5 Line 43 – 45, Column 6 Line 54 – 60 and Column 6 Line 58 – 60).

Ciacelli does not disclose expressly the hardware device is a graphic chip.

Freeman teaches the hardware device is a graphic chip (Freeman: see for example, Paragraph [0117]).

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to combine the teaching of Freeman within the system of Ciacelli because (a) Ciacelli discloses the video multimedia content scrambling system (CSS)

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and Moving Picture Expert Group (MPEG) standard (Ciacelli: see for example, Column 3 Line 25 – 43 and Column 2 Line 48 – 50 and (b) Freeman teaches using a graphic chip for the MPEG adaptation to process the video data stream (Freeman: see for example, Paragraph [0117] and Figure 7 Element 376 & 388).

decrypting, at the graphics chip, the first encrypted routine to generate a plaintext routine, wherein the plaintext routine is a version of the encryption routine (Ciacelli: see for example: Column 5 Line 43 – 50 and Column 6 Line 54 – 60); and

storing the plaintext routine in memory in a location known to the software driver (Ciacelli: see for example: Column 5 Line 43 – 50 and Column 6 Line 54 – 60: the memory location storing the decrypted “encryption / decryption routine” must be known to the software driver so that the re-encryption / decryption function can be performed and executed accordingly to re-encrypt / decrypt the data).

As per claim 4 and 34, Ciacelli teaches the claimed invention as described above (see claim 1 and 31 respectively). Ciacelli does not disclose expressly the peripheral device is a graphics chip.

Freeman teaches the hardware device is a graphic chip (Freeman: see for example, Paragraph [0117]).

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to combine the teaching of Freeman within the system of Ciacelli because (a) Ciacelli discloses the video multimedia content scrambling system (CSS) and Moving Picture Expert Group (MPEG) standard (Ciacelli: see for example, Column

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3 Line 25 – 43 and Column 2 Line 48 – 50 and (b) Freeman teaches using a graphic chip for the MPEG adaptation to process the video data stream (Freeman: see for example, Paragraph [0117] and Figure 7 Element 376 & 388).

As per claim 5, 19, 35, 44 and 59, Ciacelli in view of Freeman teaches the claimed invention as described above (see claim 4, 17, 33, 40 and 55 respectively). Ciacelli further teaches decrypting is performed by a graphics chip (Ciacelli: see for example: Column 3 Line 25 – 43, Column 5 Line 43 – 60 and Column 2 Line 48 – 50: See the same rationale addressed above in claim 17).

Ciacelli in view of Freeman does not disclose expressly decrypting is performed by a 3D pipe of the graphics chip.

However, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify Ciacelli to accommodate decrypting is performed by a 3D pipe of the graphics chip because Ciacelli in view of Freeman teaches decrypting / encrypting can be performed by multiple peripheral devices in MPEG video data encryption techniques (Ciacelli: see for example, Column 7 Line 58 – 65 and Column 2 Line 48 – 50) and 3D (3-Dimension) engine is merely one part of a series of video graphic chips in this claimed subject of matter to perform encryption / decryption.

As per claim 6, 20, 36, 45, and 60, Ciacelli in view of Freeman teaches the claimed invention as described above (see claim 5, 17, 33, 40 and 55 respectively). Ciacelli further teaches decrypting is performed by a graphics chip (Ciacelli: see for

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example: Column 3 Line 25 – 43, Column 5 Line 43 – 60: See the same rationale addressed above in claim 17).

Ciacelli in view of Freeman does not disclose expressly decrypting is performed by a IDCT component of the graphics chip.

However, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify Ciacelli to accommodate decrypting is performed by a IDCT component of the graphics chip because Ciacelli in view of Freeman teaches decrypting / encrypting can be performed by multiple peripheral devices in MPEG video data encryption techniques (Ciacelli: see for example, Column 7 Line 58 – 65 and Column 2 Line 48 – 50) and IDCT component is merely one part of a series of video graphic chips in this claimed subject of matter to perform encryption / decryption.

As per claim 7, 21, 37, 46 and 61, Ciacelli in view of Freeman teaches the claimed invention as described above (see claim 5, 17, 33, 40 and 55 respectively). Ciacelli further teaches decrypting is performed by dedicated encryption hardware of the graphics chip (Ciacelli: see for example: Abstract Line 15 – 17 and Column 2 Line 55 – 63).

As per claim 22, Ciacelli in view of Freeman teaches the claimed invention as described above (see claim 17). Ciacelli further teaches decrypting is performed through a series of components coupled within the graphics chip (Ciacelli: see for example: Column 7 Line 58 – 65).

As per claim 23, Ciacelli in view of Freeman teaches the claimed invention as described above (see claim 17). Ciacelli further teaches removing the plaintext routine (Ciacelli: see for example: Column 7 Line 16 – 21).

As per claim 27, Ciacelli in view of Freeman teaches the claimed invention as described above (see claim 17). Ciacelli further teaches selecting the first encrypted routine from a plurality of different encrypted routines, wherein the plurality of different encrypted routines are functionally equivalent (Ciacelli: see for example: Column 14 Line 10 – 15).

As per claim 30, Ciacelli in view of Freeman teaches the claimed invention as described above (see claim 17). Ciacelli further teaches providing includes storing the plaintext routine in a location in memory accessible by the software driver, and where the location in memory is known to the software driver (Ciacelli: see for example: Column 5 Line 45 – 55 and Column 6 Line 54 – 60: the memory location storing the decrypted “encryption / decryption routine” must be known to the software driver so that the re-encryption / decryption function can be performed and executed accordingly to re-encrypt / decrypt the data).

As per claim 41, Ciacelli in view of Freeman teaches the claimed invention as described above (see claim 40). Ciacelli further teaches said first interface and said

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second interface are implemented using a same interface (Ciacelli: see for example: Column 5 Line 43 – 48: the same interface of decryption module to receive and execute the decryption function for encrypted routine).

As per claim 42 and 62, Ciacelli in view of Freeman teaches the claimed invention as described above (see claim 40 and 55 respectively). Ciacelli further teaches encrypt the plaintext routine to generate a second encrypted routine, wherein the second encrypted routine is a modified version of the first encrypted routine (Ciacelli: see for example, Column 7 Line 16 – 22, Column 7 Line 58 – 65 and Column 9 Line 6 – 14: Ciacelli teaches (a) clear data is “never” resident in an accessible computer system structure such as memory buffer to inhibit theft (Ciacelli: see for example, Column 7 Line 16 – 22) and thereby the plaintext routine must be resident in the encrypted form, (b) re-encryption mechanisms through multiple “devices” (Ciacelli: see for example, Column 7 Line 58 – 65 and Column 9 Line 6 – 14)).

providing the second encrypted routine to said interface (Ciacelli: see for example: Column 5 Line 43 – 50 and Column 6 Line 54 – 60: so that the re-encryption / decryption function can be performed and executed accordingly to re-encrypt / decrypt the data by the interface).

As per claim 43, Ciacelli in view of Freeman teaches the claimed invention as described above (see claim 42). Ciacelli further teaches the first hardware component and the second component are implemented using a same hardware component

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(Ciacelli: see for example: Column 5 Line 43 – 48: the same hardware component of decryption module to receive and execute the decryption function for encrypted routine).

As per claim 52 and 58, Ciacelli in view of Freeman teaches the claimed invention as described above (see claim 49 and 55 respectively). Ciacelli further teaches the application includes a software driver (Ciacelli: see for example: Column 5 Line 54 – 55: the decrypted “decryption routine” must be presented to the software driver so that the decryption function can be performed and executed accordingly to decrypt the data).

As per claim 53, Ciacelli teaches the claimed invention as described above (see claim 49). Ciacelli does not disclose expressly the peripheral device includes a graphics chip.

Freeman teaches the hardware device includes a graphic chip (Freeman: see for example, Paragraph [0117]).

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to combine the teaching of Freeman within the system of Ciacelli because (a) Ciacelli discloses the video multimedia content scrambling system (CSS) and Moving Picture Expert Group (MPEG) standard (Ciacelli: see for example, Column 3 Line 25 – 43 and Column 2 Line 48 – 50 and (b) Freeman teaches using a graphic chip for the MPEG adaptation to process the video data stream (Freeman: see for example, Paragraph [0117] and Figure 7 Element 376 & 388).

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As per claim 56, Ciacelli in view of Freeman teaches the claimed invention as described above (see claim 55). Ciacelli further teaches the first encrypted data includes an encrypted software routine (Ciacelli: see for example: Column 5 Line 43 – 50 and Column 6 Line 54 – 60: See the same rationale addressed above in claim 17).

As per claim 57, Ciacelli in view of Freeman teaches the claimed invention as described above (see claim 55). Ciacelli further teaches the first encrypted data includes an encrypted version of one of: a private encryption key, a private decryption key, a chip ID, and a device ID (Ciacelli: see for example: Column 6 Line 42 – 45).

5. Claims 14 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ciacelli (Patent Number: 6236727), hereinafter referred to as Ciacelli, in view of Wilson (Patent Number: 4520232), hereinafter referred to as Wilson.

As per claim 14, Ciacelli teaches the claimed invention as described above (see claim 1). Ciacelli does not disclose expressly decrypting includes using a map as a decryption key.

Wilson teaches decrypting includes using a map as a decryption key (Wilson: see for example: Column 2 Line 12 – 24).

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to combine the teaching of Wilson within the system of Ciacelli because Wilson teaches providing a poly-graphic encryption mechanism which is both



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fast and inexpensive with enhanced security strength (Wilson: see for example, Column 1 Line 28 – 34).

As per claim 15, Ciacelli in view of Wilson teaches the claimed invention as described above (see claim 14). Wilson further teaches the map includes a texture map (Wilson: see for example, Column 1 Line 28 – 34: the matrix is qualified as a two-dimensional texture map).

6. Claims 28 and 29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ciacelli (Patent Number: 6236727), hereinafter referred to as Ciacelli, in view of Freeman (Patent Number: 2002/0129374), hereinafter referred to as Freeman, and in view of Wilson (Patent Number: 4520232), hereinafter referred to as Wilson.

As per claim 28, Ciacelli in view of Freeman teaches the claimed invention as described above (see claim 17). Ciacelli in view of Freeman does not disclose expressly decrypting includes using a map as a decryption key.

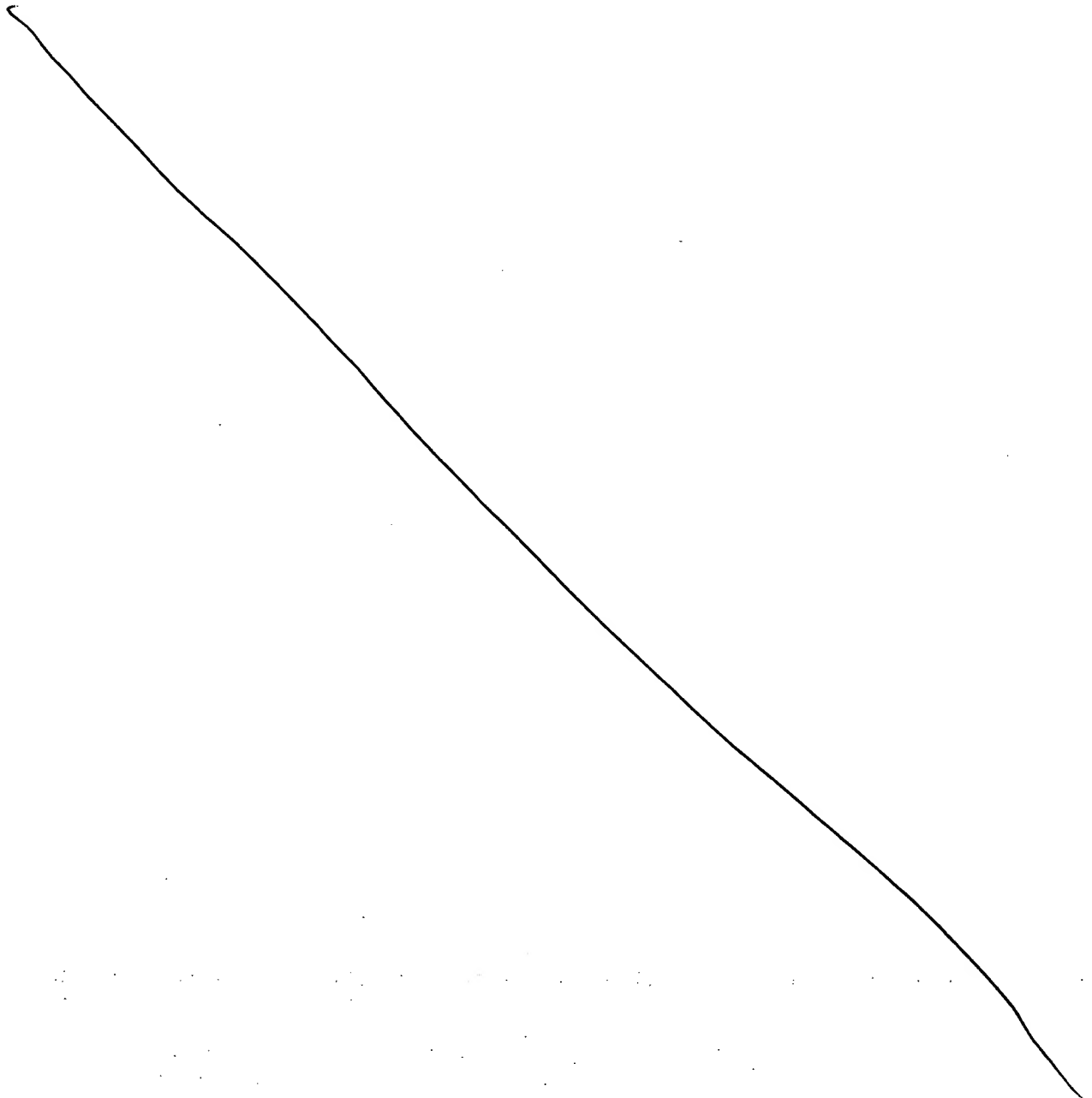
Wilson teaches decrypting includes using a map as a decryption key (Wilson: see for example: Column 2 Line 12 – 24).

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to combine the teaching of Wilson within the system of Ciacelli in view of Freeman because Wilson teaches providing a poly-graphic encryption

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mechanism which is both fast and inexpensive with enhanced security strength (Wilson: see for example, Column 1 Line 28 – 34).

As per claim 29, Ciacelli in view of Freeman and Wilson teaches the claimed invention as described above (see claim 28). Wilson further teaches the map includes a texture map (Wilson: see for example, Column 1 Line 28 – 34: the matrix is qualified as a two-dimensional texture map).



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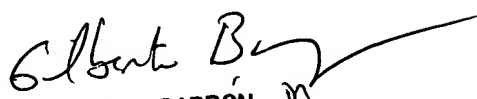
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Longbit Chai whose telephone number is 571-272-3788. The examiner can normally be reached on Monday-Friday 8:00am-4:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ayaz R Sheikh can be reached on 571-272-3795. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

LBC 

Longbit Chai  
Examiner  
Art Unit 2131

  
GILBERTO BARRÓN JR.  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 2100